# Final Report Form for
# New Small Production Wells for Community Water Systems
# March 2004*

**PROJECT NAME**: _____

**TOWN/CITY**: _____**DATE:** _____

**EPA ID #** _____

**PURPOSE:** This form, when complete, will provide the information required for small well siting final reports under Env-Ws 378, *Site Selection of Small Production Wells for Community Water Systems*. Once completed, this form can be submitted as the final report. You don't have to use this form. However, based on experience, the NH Department of Environmental Services (DES) has found that use of the form speeds up the siting process. If you prefer to produce an original report be sure to provide all the information required under the rule. The Department recommends this form be used as a checklist to help ensure your report is complete. Helpful information and reminders are provided throughout the form and are printed in *italics*. Copies of this form and other useful publications may be found at the following website: http://www.des.nh.gov/DWSPP/newcomm.htm.

**INSTRUCTIONS:**

A. Obtain copies of the following from your files or the Department:

1. Preliminary report for the project and all Departmental review and approval letters.
2. Pumping test data and water quality analysis results from the pumping test.
3. Well completion report and any field logs of borehole geology for the site.
4. Administrative Rule Env-Ws 378, *Site Selection of Small Production Wells for Community Water Systems, April 1999*
5. Administrative Rule Env-Ws 372, *Small System Design Criteria, June 1997*. (Small community water systems are subject to design criteria under Env-Ws 372. This document assists you in making sure the new well project will meet those criteria.)
6. *The Applicant's Toolkit for Siting New Small Community Wells in New Hampshire, February 2004*.
7. The pumping test guide, *A Field Guide for Pumping Test Operators*
7. Contact Johnna McKenna at (603) 271-7017 to request a current (less than 90 days old) GIS

Map and Inventory of contamination sources and water supplies for your site. She will need a location map of your site and this may be faxed to her attention at (603) 271-0656. If there
is an active contaminated site you must review the site file before submission of this form. To make a file review appointment contact DES staff at **271-2919** after you receive your map and inventory and determine which files you need to review. When you arrive at DES for your file review, sign in with the receptionist and tell her you are there to see the Waste Management Division file librarian.

B. Review the well siting rules and guidance materials obtained above. You should use these materials to assess your water system design and site specific well siting needs.

C. Complete this form by answering all questions from top to bottom, unless instructed to skip to another section and provide the appropriate attachments.

D. It is very important to recognize that an incomplete form, like an incomplete final report, will be returned for completion before being reviewed by the Department. Reports are reviewed in the order they are received and return of your report will slow the approval process.

E. Submit completed form to: New Community Well Sitings
Water Supply Engineering Bureau
Post Office Box 95
Concord, NH 03302 -0095

For help with this form or other well siting concerns call Diana Morgan at (603) 271-2947.

*Information contained in this form is current as of March 2004. Statutory or regulatory changes that may occur after March 2004 may cause part or all of the information to be invalid. If there are any questions concerning the status of the information please contact DES at (603) 271-2947.

## 1.0 GENERAL INFORMATION

*This section asks you to identify the people and companies responsible for the well siting and water system and to describe the well site. This information will help ensure clear communication about the well siting.*

**1.1**. **Date of Department Preliminary Report Approval Letter**:

_____

**1.2 Project Contact**: *Person completing this form.*

Name: _____

Address: _____

Company: _____

Phone Number: _____

**1.2a Project Owner**: *Person responsible for compliance with approval conditions issued by the Department.*

Name: _____

Address: _____

Company: _____

Phone Number: _____

**1.2b Is the person listed in 1.2a the current owner of the water system?**
YES___ NO___

If **YES**, got to (1.3) below.
If **NO**, identify the current water system owner;

Current Owner: _____

Address:_____

Phone:_____

**1.3 As-Built Well Location & Description**:

Describe the location of each well in reference to the existing or proposed pumphouse. *For example, Well #1 is 159 feet SW of the pumphouse.*

_____

**1.4 Build Out:**

What is the total number of service connections, units and bedrooms proposed for this system at build-out? How many exist now?

Service connections; Build-out: _____ Existing: _____

Units; Build-out: _____ Existing: _____

Bedrooms; Build-out: _____ Existing: _____

**1.5 Source Capacity:**

What is the total source capacity required for the system under Env-Ws 372.11? *Please use Worksheet A, found in the guidance document and the preliminary report form, to be sure your calculations are complete and explain how those calculations were developed. Please note, source capacity does not equal design flow. If the total is 57,600 gpd or more, the siting is subject to Env-Ws 379,* Site Selection Of Large Production Wells for Community Water Systems. *Contact the Department for a copy of those Rules and related guidance material.*

_____gpd

**1.6 Site Sketch**:

Provide a sketch showing the well location and **everything** existing and proposed, within 500 feet of the new well. Use a scale large enough to provide detail. (*This map may also be used to supply information for sections 2.1, 3.5a, and 5.1a of this report. Include elevation contours, if available.)*

## 2.0 SANITARY PROTECTIVE AREA

### 2.1 Sanitary Protective Area Radius:

What is the radius of the sanitary protective area (SPA) for each well? Complete Table 2-1 for each well, using the chart below to determine radii. *The final size of the sanitary protective area will depend on the approved permitted production volume(s) of the well(s). The SPA for each well is a circle, centered on the well, with a specific radius. Match the volume for each well to the sanitary protective area radius in the following chart.* ***If more than one well is in one protective area, combine the volumes of those wells and identify a new radius for each new well.*** *Please note, each well must have a separate sanitary protective area.*

**SANITARY PROTECTIVE AREA RADII**

| Permitted Production Volume (gal) | Radius |
|---|---|
| less than 14,400 | 150 feet |
| 14,401 to 28,800 | 175 feet |
| 28,801 to 57,600 | 200 feet |
| 57,601 to 86,400 | 250 feet |
| 86,401 to 115,200 | 300 feet |
| 115,201 to 144,000 | 350 feet |
| greater than 144,000 | 400 feet |

**Table 2-1, SANITARY PROTECTIVE AREA RADII**

| Well Name/Number | Permitted Production Volume | Radius |
|---|---|---|
| | | |
| | | |
| | | |

- **Show the sanitary protective area for each well on the site sketch in section 1.6.**

### 2.2 Land Use:

Is all the land inside the sanitary protective area maintained in a natural, undisturbed state and will it stay that way after build-out?
YES_____ NO_____

If **YES,** describe the make up of the land within the sanitary protective area. *Such as*

*woods, meadow, and lawn.*

_____

_____

If **NO**, was a waiver obtained for all land uses not required for operation and maintenance of the well and water system?
YES_____ NO_____

If **NO**, see Worksheet A for directions to apply for a waiver. **The well site cannot be approved unless a waiver is obtained for any non-water supply activity.**

**2.3 Legal Control of the Sanitary Protective Area:**

**2.3a** Does the water system currently own all the land in the sanitary protective area(s)?
YES___ NO___

If **YES**, identify the grantee, registered deed number(s), county name and date(s) of registration.

Grantee: _____

Deed No(s): _____ County: _____

Date(s): _____

If **NO**, has the water system gained control of non-owned land by getting a land use easement?
YES___ NO___

If **YES**, attach a copy of the easement language stamped with the date of register.

If **NO**, either:
If the water system is still in process of obtaining an easement, attach a copy of the easement language and provide a schedule for completion

Schedule: _____

**Or**,
If the water system will, at a later date, control all the area by any means other than a land use easement, describe when and how. *Provide all pertinent documents, such*

*as proposed condominium covenants.*
When and How: _____

_____

**2.3b** Will the water system be transferred at a later date to another entity such as an association or private operator?
YES_____ NO _____

If **YES**, when and how will control of the sanitary protective area be transferred? *Please note that control of the well's Sanitary Protective Area must stay with the system. Attach a copy of the proposed easement language.*

When and How? _____

_____

## 3.0 PUMPING TEST

*Please note, systems using multiple wells to meet a required source capacity which is 57,600 gallons per day or more are regulated under Env-Ws 379,* Site Selection Of Large Production Wells for Community Water Systems. *Contact the Department for a copy of those Rules.*

### 3.1 Non-Standard Testing:

Was a test other than the Standard Test as defined in Env-Ws 378 used?
YES ____ NO ____

If **YES**, please describe the method used.

_____

_____

### 3.2 Test Performer:

**3.2a** Who was responsible for setting up, directing the test and making decisions during it? *Such as making sure that the test was conducted as approved, including preliminary report approval conditions, that the water was discharged in the approved location, a constant pumping rate was maintained, measurements were made correctly and on schedule, and the test was not ended before stabilization was achieved.*

Name: _____

Company: _____

Phone: _____

**3.2b** Who actually performed the pumping test, if different from the person named in Section 3.2a?

Name: _____

Company: _____

Phone: _____

### 3.3 Operation of Wells

**3.3a**. **Well Operation**:

**3.3a.1** How were all the system's wells operated during the testing? *Include new and existing wells. Complete Table 3-1.*

**Table 3-1, OPERATION OF SYSTEM WELLS**

| Well | Pumping Rate (gpm) | Operation Schedule |
|---|---|---|
| | | |
| | | |
| | | |

**3.3a.2** How were constant pumping rates maintained? What was the range of pumping rates after the first hour?

_____

_____

_____

**3.3b**. **Temporary Connection**: Was it necessary to temporarily connect a new well to the water system during the pumping test?
YES___ NO___

If **NO**, go to (3.4) below.

If **YES**, identify who was responsible for ensuring that the well and lines were flushed to guarantee acceptable water quality and when and how this was done.

- **Attach a copy of the laboratory results, showing sampling and analysis dates.**

Who? _____
Name Company
How? _____

_____ Date: _____

**3.4** How were pumping rates measured? *Complete Table 3-2 for each well.*

- **Attach a list of pumping rate measurements, including times the measurements were taken.**

**Table 3-2, PUMPING RATE MEASUREMENTS**

| Well Name/ Number | Equipment | Method | Schedule |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

**3.5 Discharge Location:**

**3.5a.** Describe the discharge locations used during the pumping test in the following table. Show these locations on the site sketch provided for Section 1.6.

**TABLE 3-3, FINAL DISCHARGE LOCATIONS**

| Well | Discharge Location | Distance from Well |
|---|---|---|
| | | |
| | | |
| | | |

**3.5b.** Was there any ponding at the discharge point or anywhere along the discharge line(s)? YES_____ NO _____

If **YES,** describe the location, depth and area of ponding. How close was this ponding to the pumping well(s)? Did the ponded water reach any natural outfall? What type of soil is in the ponded area?

_____

_____

**3.6 Water Level Measurement:**

How were water levels measured in each well? *List type of equipment used and measurement methods. Complete Table 3-4 for each well.*

**Table 3-4, WATER LEVEL MEASUREMENT**

| Well | Equipment/Method |
|---|---|
| | |
| | |
| | |

**3.7 Pumping Test Results:**

**3.7a** What were the start and end dates of the pumping test? How long was the test, in hours?

Start Date: _____

End Date: _____Hours: _____

**3.7b** Attach a copy of the **original** pumping test log including all measurement times, weather conditions, pumping rates, and drawdowns for each well. If used, include a semi-log plot of time vs drawdown for each well. A copy of the well completion report and/or a well profile must also be submitted.

**3.8 Well Casing & Pump Information:**

What are the depths and casing sizes for each well? At what levels are the pumps set in each well? *Complete Table 3-5 for each well.*

**Table 3-5, WELL CASING & PUMP INFORMATION**

| Well Name/Number | Pump Depth/Feet | Well Depth/Feet | Casing Length & Diameter |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

**3.9 Stabilization:**

Was the pumping test stopped before stabilization was reached? YES___ NO ___

If **YES**, document why this decision was made.

_____

_____

_____

**3.10 Recovery Period (if applicable):**

How long was the recovery period for each well and what was the percent of recovery?

Hours: _____

Percent of total drawdown: _____

### 3.11 Impacts to/from the New Well:

**3.11a** Which of the following impacts from/to the new well were assessed and how? Check all that apply.

___ Saltwater intrusion.
___ Fluctuations in water levels in nearby surface waters.
___ Groundwater contamination plumes.
___ Fluctuations of water levels in nearby wells.

How? _____

_____

**3.11b** Is there a potential for the well to produce any of these impacts in the future? Describe the potential and how it will be managed. *Attach a detailed contamination management plan.*

_____

_____

_____

_____

## 4.0 LABORATORY ANALYSIS RESULTS

### 4.1 Sample Collection and Delivery:

Who was responsible for collecting water quality samples and delivering them to the laboratory?

Name: _____

### 4.2 Analyses and Laboratory:

**4.2a**. Sample Collection and Analysis: Which wells were tested, when were the samples collected, how were they transported, and what parameters were analyzed? *Complete Table 4-1 for each well.*

**Table 4-1, WATER QUALITY MONITORING**

| Well | When Sample Was Collected | How Sample Was Transported |
|---|---|---|
| | | |
| | | |
| | | |

**4.2b**. What laboratory analyzed the samples and for which parameters? *Complete Table 4-2 below for each laboratory. The laboratory must have current certification in New Hampshire for doing the analyses using drinking water methods.*

- **Attach a copy of complete laboratory reports for all wells**.

**Table 4-2, LABORATORY**

| Well | Laboratory | NH Certification Number | Analysis This Lab Performed |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

**4.2c** Did any of the tested parameters exceed Safe Drinking Water Act primary or secondary standards?
YES ___ NO ___

If **YES**, how does the water system propose to manage water quality?

_____

_____

_____

## 5.0 SOURCE WATER PROTECTION

*Refer to Env-Ws 378 and the siting guide,* Applicant's Toolkit for Siting New Small Community Wells*, for more information and requirements.*

**5.1 Refinement of the Wellhead Protection Area** (WHPA) **for Bedrock Wells**:
*(Please note, small overburden wells require an analytical delineation method based on information collected during the pumping test. Contact Department well siting staff for guidance, if needed.)*

Did you use the default WHPA radius? YES___ NO___

If **YES**, identify the radii of the WHPA(s) using Table 5-1 below. *Complete Table 5-2 for each well. The size of the WHPA depends on the permitted production volume(s) of the well(s). If more than one well is in the Sanitary Protective Area of one well, combine the volumes to identify the WHPA radius for each new well.*

- **Attach a map of the refined WHPA.**

**Table 5-1, WELLHEAD PROTECTION AREA RADII**

| Permitted Production Volume (Gal) | Radius |
|---|---|
| Zero to 7,200 | 1,300 feet |
| 7,201 to 14,400 | 1.500 feet |
| 14,401 to 28,800 | 2,050 feet |
| 28,801 to 43,200 | 2,850 feet |
| 43,201 to 57,599 | 3,600 feet |
| 57,600 and over | 4,000 feet |

**Table 5-2, WELLHEAD PROTECTION AREAS**

| Well Name/Number | Permitted Production Volume | WHPA Radius |
|---|---|---|
| | | |
| | | |
| | | |

If **NO**, provide a detailed technical description of the delineation method used. Include **All** of the following:

**5.1a**. Map showing delineated WHPA and description of the delineation method.

**5.1b.**. Description of additional data collection activities, including any performed as part of the pumping test program.

**5.1c**. Description and justification of how the data was analyzed and reported.

**5.2 GIS Map & Inventory:**

Provide an up-to-date GIS Map and Inventory and file review report. If the ones submitted in the preliminary report are more than 90 days old, obtain an updated GIS map from the Department and conduct another windshield survey.

**5.2a** Who performed the windshield survey of the entire WHPA? When?

Name: _____ Date: _____

Phone: _____

**5.2b** Are there any existing contamination sources within the Wellhead Protection Area?
YES _____ NO _____

If **YES**, document how the water system plans to manage those sources to minimize contamination of the wellhead.

_____

**5.3 Wellhead Protection Program**:

The program is mandatory and includes updating the contamination source inventory every 3 years and sending groundwater protection educational materials to all municipalities, persons residing in, doing business in or otherwise occupying the wellhead protection area. These materials should be submitted on the water system's letterhead**.** *See the Guidance document for examples of the educational materials.* The first round of educational mailings is due within three (3) months of new system startup, or at the next regular waiver renewal, and must include Best Management Practices Rules for all potential contamination sources.

Who will be responsible for distributing these materials?

Name: _____

Address: _____

Phone: _____

- **Provide a copy of the Wellhead Protection Program materials on water system letterhead.**

## 6.0 APPROVAL TO CONNECT THE WELL

*Please note that approval to connect the well must be obtained under Env-ES 372*, Design Standards for Small Public Drinking Water Systems. *See the attached Connection Requirements sheet if this well is for an existing system. Otherwise, contact Water Supply Engineering Bureau (WSEB) staff at **271-2949** for further information.*

Who will be submitting distribution and connection design plans to WSEB staff?

Name: _____ Date of Submittal: _____

Company: _____

## 6.1 SAMPLING WAIVERS

Implementation of a Wellhead Protection Program may qualify the applicant for a waiver from certain sampling requirements. If a sampling waiver is granted, it is estimated that the water system would **save more than $11,000** in sampling costs over a nine-year period. The materials submitted with this form for the Wellhead Protection Program will be forwarded to David Reid of the Drinking Water Source Protection Program who will be contacting the water system shortly after approval is granted. He will assist the water system in applying for a waiver.

***Before submitting, thoroughly check this form to be sure all questions are answered, all information is provided and all necessary attachments are included. Incomplete submittals will be returned before being reviewed by the Department***.

Preparer's Signature: _____

_____

Name Title Company

Date: _____

## As a reminder, have you enclosed the following?

1. As-built site sketch. (Section 1.6)
2. Copy of easement language and date of register. (Section 2.3)
3. Pumping test log(s) including measurement times, pumping rates, water levels, weather, semi-log plot(s) of time vs drawdown, well completion reports and well profiles. (Section 3.0)
4. Lab results for system flushing. (Section 3.3b)
5. Site sketch of the discharge location. (Section 3.5)
6. Laboratory results. (Section 4.0)
7. WHPA map. (Section 5.1)
8. All maps, data, and analysis required for an alternative WHPA delineation method, if one was used. (Section 5.1)
9. Updated GIS Map and Inventory. (Section 5.2)
10. Copy of educational materials on water system letterhead for Wellhead Protection Program. (Section 5.3)
11. Any other pertinent materials.

**Worksheet A: Waiver Application**

Project Name:_____Town/City:_____
Date: _____

Which section of the **rule** are you requesting be waived? Env-Ws 378._____. Specifically, the requirement that:
_____
_____
_____
_____

Explain what, specifically, needs to be waived at this well site. Provide diagrams where helpful._____
_____
_____
_____
_____

Describe what hardship would be caused if the rule were adhered to._____
_____
_____
_____
_____

Explain the alternative solution in detail. Provide diagrams where helpful. _____
_____
_____
_____
_____
_____

Explain how the alternative is consistent with the intent of the rules and would have a just result.
_____
_____
_____
_____
_____

Explain how the alternative would adequately protect human health and the environment.
_____
_____
_____
_____

# Connection Requirements Under Env-Ws 372

All wells at small community systems must meet requirements of the Department of Environmental Services (Department) **before** being put into service for use by the public. A small community system, with an unapproved source on-line, is subject to a fine. Env-C 602.08(c) provides for a fine of **$1,000** per well that is connected, activated, or re-activated at a small community water system without Department approval.

Before using any water supply well or activating/re-activating any existing well, the following requirements* must be met.

- **Well Siting Approval:** All wells must meet well siting criteria and obtain approval under Env-Ws 378. Contact Diana Morgan at 271-2947 or dmorgan@des.state.nh.us with any siting concerns.

- **Design Approval:** If connection requires installation of more than 500 feet of waterline, treatment facilities, or any other appurtenances; then plans and specifications must be approved by the Department before the start of any construction. Contact Jim Gill at 271-2949 or jgill@des.state.nh.us with submittal questions.

- **Water Meters:** Each source must have its own water meter. It must be installed in the line between the source and the first storage tank.

- **Sampling Taps:** Each well must have its own sampling tap. Each tap shall be placed in the line between the source and the first storage tank. It shall be at least 12 inches above the floor or finished grade.

- **Department Inspection:** Source connections requiring design approval as described above and those where new treatment will be applied shall also require an inspection by Department staff. The inspection shall occur after construction and **before** the source is used to provide water to the system.

- **Disinfection:** Wells and all waterlines, storage tanks, etc. must be flushed, disinfected with chlorine, re-flushed, and sampled for acceptable bacteria quality **before** being used to provide water to the system.

- **Sampling Schedule Update**: Each well must be sampled according to a revised schedule provided by the Department. Contact Jeanne Lawson at 271-6703 or jlawson@des.state.nh.us with any questions about schedules.

- **Blend Approval:** Multiple sources may be sampled as a single, blended sample, only if all the system's active sources are wired to operate either simultaneously or to automatically alternate between pumping cycles. New blends must be approved by DES. Contact Engineering Field staff at 271-2513 to obtain blend approval.